

REMARKS

Independent Claims 1 and 22 are revised in a further effort to define patentable subject matter over the art of record. Claim 1 also now incorporates the substance of Claim 2, which latter claim is cancelled without prejudice. Claims 3 and 5 are amended to maintain proper dependency. Claims 1, 3-11, 15-17, and 22-24 remain, with no claim previously allowed.

Claims 1, 15 and 16 are rejected as being unpatentable over *Crepay* (6,622,121) in view of *Valles* (2004/0083092). The applicant respectfully traverses that rejection as possibly applied to the amended claims.

Claim 1 now recites a method for testing and improving the performance of a speech recognition engine comprising, in pertinent part, loading one or more spoken words, phrases, or utterances (hereinafter “utterances”) of plural grammar types into a memory location. One or more of the spoken utterances is identified for recognition by a speech recognition engine. The identified utterances are categorized by grammar type, so that all utterances of the same grammar type are grouped together in a grammar sub-tree. The method further comprises selecting a particular grammar sub-tree and extracting the spoken utterances from the selected grammar sub-tree. Those extracted utterances are passed to a text-to-speech conversion module providing an audio formatted pronunciation of each utterance in the selected grammar sub-tree.

Claim 1 further recites passing the audio pronunciation of each utterance, grouped in the selected grammar sub-tree, from the text-to-speech conversion module to the speech recognition engine. The speech recognition engine creates a recognized utterance for each audio pronunciation passed to that engine, and the embodiment next analyzes each recognized utterance created by the speech recognition engine from the selected grammar sub-tree, to determine how closely each created recognized utterance approximates the respective audio pronunciation from which that created recognized utterance is derived. Claim 1 has been amended to further recite assigning a confidence score to each recognized utterance associated with the confidence of the speech recognition engine that a correct representation of the audio pronunciation was received. Support for this amendment may be found at least at page 11, lines 4-6 of applicant’s specification).

Crepay, in contrast with the subject matter of Claim 1, teaches speech recognition wherein the test speech material is provided *independently of a human speaker* (Column 1, Lines 46-48).

A digital audio file is generated from a reference text using a text-to-speech device (Column 1, Lines 61-62), either by tokenizing the initial text (Column 2, Line 10) or by generating synthetic speech from a reference text from a text-to-speech device implemented within a first computing system (Column 2, Lines 16-19). In contrast with *Crepy*, Claim 1 calls for “loading into a memory location one or more spoken...utterances of plural grammar types”.

The method of Claim 1 identifies one or more of the spoken utterances, and categorizes the identified utterances by grammar type for grouping together in a grammar sub-tree. A particular grammar sub-tree is selected, and the spoken utterances are extracted from the selected grammar sub-tree (Page 9, Lines 11-19). By categorizing spoken utterances by grammar type, an application developer using the present method may test the ability of a speech recognition engine to recognize and process particular types of utterances, such as person names, during one testing session (Page 9, Lines 21-24).

The rejection acknowledges that *Crepy* fails to teach categorizing utterances by grammar type and grouping together the same utterances into a grammar sub-tree. *Valles* is cited as teaching those elements missing from *Crepy*. However, the applicant respectfully submits that *Valles* does not supply that attributed teaching, missing from the principal reference. *Valles* teaches creating a “semantic dictionary” containing, for each word, the kind of arguments that it expects and in which order, for parsing of the “context-free grammars” mentioned therein (Paragraphs 0160-0161). Thus, while constructions such as “Joe drinks wine” is a semantic possibility, “Joe drinks the telephone” is not, as that latter construction doesn’t make sense (0160). *Valles* teaches that form of grammar parsing to provide an apparatus capable of conversing between a computer and humans while the computer interfaces with existing information systems, e.g., a banking system. However, *Valles* is not concerned with grouping all utterances of the same grammar type together into a grammar sub-tree, and *Valles* likewise does not teach selecting a particular grammar sub-tree for extracting one or more spoken utterances for conversion that provides an audio formatted pronunciation of each utterance in the selected grammar sub-tree.

Moreover, *Valles* has no need of any such categorizing, selecting, or extracting with respect to grammar sub-trees. *Valles* merely discloses a speech recognition engine (10) which converts speaker utterances into text, and a text-to-speech interface (8) which synthesizes text

into speech (0082). Spoken-word recognition is thus a given with *Valles*, who discloses a method for processing natural language requests based on those recognized words (0036). One of ordinary skill, accordingly, would not have found from *Valles* any teaching to categorize identified utterances by grammar type, to group together utterances of the same grammar type in a grammar sub-tree and to select a particular grammar sub-tree for extracting the spoken utterances and passing those spoken utterances to a text-to-speech conversion providing an audio pronunciation of each utterance in the selected grammar sub-tree. Those teachings, in the combination recited by Claim 1, come only from the present applicant and not from *Valles* and *Crepy*. Accordingly, the applicant respectfully submits that Claim 1 is patentable over *Crepy* in view of *Valles*.

The claims depending from Claim 1 are likewise deemed patentable over *Crepy* in view of *Valles* for the reasons discussed above.

Claims 2-6, 10, 11, and 22 are rejected as being unpatentable over *Crepy* in view of *Valles*, further in view of *Raud* (6,125,341). (The substance of Claim 2 is now in amended Claim 1.) Although *Raud* discloses calculating a confidence score for each word in a speech recognition system, that reference in combination with *Crepy* and *Valles* does not supply the missing teachings as discussed above. Accordingly, the applicant submits that the rejected claims are patentable over *Crepy* in view of *Valles* and *Raud*.

Claim 7 is rejected as being unpatentable over *Crepy* in view of *Valles* and *Raud*, further in view of *Bickley* (7,013,276). Claim 17 is rejected as being unpatentable over *Crepy* in view of *Valles*, further in view of *Kennewick* (2004/0044516). The applicant respectfully traverses those rejections. In each case, the additional secondary reference, considered in the overall combination of cited references, fails to supply the teachings of the parent claim as discussed above. Accordingly, Claims 7 and 17 are not obvious over the art respectively applied to those claims.

Claim 22 is rejected as being unpatentable over *Crepy* in view of *Valles* and in view of *Raud*. Claim 22 recites a method similar to that of Claim 1, including identifying one or more spoken utterances, categorizing those identified utterances by grammar type so that utterances of a same grammar type are grouped in a grammar sub-tree, selecting a particular grammar sub-tree, creating an audio pronunciation of each spoken utterance in the selected grammar sub-tree,

and passing that created audio pronunciation to a speech recognition engine. For the reasons discussed above with respect to Claim 1, a method as in Claim 22 would not have been obvious to one of ordinary skill from *Crepy* in combination with *Valles*. *Raud*, as also mentioned above, does not supply any teaching missing from the other two references and, indeed, was not cited for that purpose. Accordingly, Claim 22 and dependent Claim 24 are patentable over the art applied to those claims.

Claims 8 and 23 are rejected as being unpatentable over *Crepy*, *Valles*, and *Raud*, further in view of *Kennewick*. Claims 9 and 24 are rejected as being unpatentable over *Crepy* in view of *Valles* and *Raud*, further in view of *Roberts* (6,999,930). However, neither *Kennewick* nor *Roberts*, when considered in combination with the other applied art, would have placed one of ordinary skill in possession of the subject matter defined in the respective claims, for the reasons pointed out above with respect to Claim 1. Accordingly, the applicant respectfully submits that Claims 8 and 23, and 9 and 24, would not have been obvious to one of ordinary skill in view of the art applied against those claims.

The foregoing is submitted as a complete response to the Office action identified above. The applicant respectfully submits that the present application is in condition for allowance and solicits a notice to that effect.

Respectfully submitted,

MERCHANT & GOULD, P.C.

Date: March 25, 2008

/Roger T. Frost/

Roger T. Frost

Reg. No. 22,176

Merchant & Gould, P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903
Telephone: 404.954.5039

